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## BEFORE THE BOARD OF PATENT APPEALS
## AND INTERFERENCES

Application Number: 10/672,390
Filing Date: September 26, 2003
Appellant(s): VOORHEES ET AL.

_____
Daniel N. Fishman
Reg. No. 35,512
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed November 13, 2008 appealing from the Office action mailed

July 9, 2008.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,199,137                                   Aguilar et al.

Appellants Admitted Prior Art Specification page 3

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-12,14,16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Appellants

Admitted Prior Art (AAPA), and further in view of Aguilar et al. (US 6,199,137), herein referred to Aguilar.

As per claim 1, AAPA discloses configuring routing attributes of ports within a SAS network

domain, as claimed, comprising:

discovering devices of the SAS network domain (see page 3, paragraph 1, *describing how an

SAS initiator may perform a discovery process that determines the topology of the network domain*) ;

discovering the ports of the discovered devices (see page 3, paragraph 2, *describing how an

administrator must set a routing attribute associated with each port of an SAS device implying a discovery

of the ports*);

determining the routing attribute to be associated with each discovered port of the discovered

devices (see page 3, paragraph 2, *where an admin must set a routing attribute, implying a determination

of one of the standards defining a routing attribute*);

configuring the routing attributes of the discovered ports (see page 3, paragraph 2, *describing

how an administrator must set a routing attribute associated with each port of an SAS device implying a

discovery of the ports*); and

configuring routing table information used by the devices of the domain derived from the

configured routing attributes (see page 3, paragraph 2, *describing the routing attributes that configures

the routing table information*).

Although the system disclosed by AAPA shows substantial features of the claimed invention

(discussed above), it fails to disclose that the steps above are performed automatically.

Nonetheless, these features are well known in the art and would have been an obvious

modification of the system disclosed by AAPA, as evidenced by Aguilar.

In an analogous art, Aguilar discloses the disadvantages of manually configuring IO devices

because it might require a system administrator to perform a procedure that is difficult, error prone and

require expensive, time consuming design and re-qualification (see column 1, lines 39-50).  Aguilar

discloses that it is desirable to have a device which can be adapted to provide additional bandwidth by

dynamically creating a new instance of the IO controller in response to the requirements of a system

without the addition of new hardware. Further showing automatically discovering devices, ports, and

determining and configuring routing attributes and routing tables (see column 4, lines 26-49, *describing*

*the addition of a device and querying the port router to discover the topology and changing hardware*

*registers to configure routing attributes to accommodate the newly added device, where the determination*

*of the routing attribute is performed when the system software affects the change in routing of signals*

*between any combination of Ports and Controllers*).

Given the teaching of Aguilar, a person having ordinary skill in the art would have readily

recognized the desirability and advantages of modifying AAPA by employing automatic port and router

attribute configurations, such as disclosed by Aguilar, in order to avoid tedious manual configuration with

the addition of new devices.

As per claim 2, AAPA further discloses that the steps of discovering devices, discovering ports,

and configuring the routing attributes of the discovered ports each include a step of exchanging SMP

messages (see page 3, first paragraph).

As per claim 3, AAPA further discloses configuring routing table information within initiator and

expander devices of said devices of the SAS network domain wherein said routing table information is

sufficient to identify paths in the SAS network domain to enable the exchange of said SMP messages

(see page 3, first paragraph).

As per claim 4, AAPA further discloses completely configuring routing table information to identify

all paths for exchange of messages within the SAS network domain (see page 3, second paragraph).

As per claim 5, Aguilar further discloses that that the steps of completely configuring is integrated

with the steps of discovering devices, discovering ports, and configuring ports (see column 4, lines 26-

49).

As per claims 6,19, AAPA further discloses transmitting an SMP Discover request from a first

device to a neighboring device of the first device (see page 3, first paragraph); and

receiving an SMP Discover response in said first device from said neighboring device identifying

other devices coupled to ports of said neighboring device (see page 3, first paragraph, *describing the*

*SMP Discover request to determine the topology of the SAS domain by a recursive traverse through all*

*expander devices in the SAS domain*).

As per claim 7, AAPA further discloses transmitting an SMP Report General request from a first

device to a neighboring device of the first device (see page 3, first paragraph); and

receiving an SMP Report General response in said first device from said neighboring device

identifying the number of said ports within said neighboring device (see page 3, first paragraph,

*describing the recursive traverse through all expander devices, implying identifying the number of said*

*ports because all the expander devices are traversed, inherently including all the ports of the expander*

*devices*).

As per claims 8,20, AAPA further discloses transmitting an SMP request from a first device to a

second device wherein the SMP request includes vendor unique information identifying a routing attribute

of said routing attributes to be configured for a port of said ports of said second device (see page 3,

second paragraph , *describing the different routing attributes that can be set with each port of an SAS*

*device through the use of the SMP requests described on page 3, first paragraph*).

As per claim 9, AAPA further discloses recursively repeating the steps of the method to traverse

devices of the SAS network domain to configure said routing attributes of said ports of said devices of the

SAS network domain (see page 3, first paragraph).

As per claim 10, AAPA in view of Aguilar disclose a SAS network domain, as claimed,

comprising:

a plurality of expander devices providing a plurality of ports within the domain wherein each port

may have an associated routing attribute (see AAPA, page 3, second paragraph); and

a domain control element coupled to at least one of the plurality of expander devices operable to

configure the routing attributes of the plurality of ports (see Aguilar column 4, lines 26-49, *describing the*

*configuration of ports (i.e. topology for routing the ports) to accommodate the addition of a new device*),

wherein the domain control element is operable to automatically determine and automatically configure

the routing attributes of the ports by traversing port connections between the expander devices and

wherein the domain control element is further operable to use the configured routing attributes to

automatically generate complete routing tables used by the plurality of expander devices (see Aguilar

column 4, lines 26-49, *describing how the system can query (i.e. traverse port connections) the port*

*router and discover the default topology and then change the routing attributes by changing routing of*

*signals between ports and controllers, implying a determination and configuration of routing attributes).*

As per claim 11, AAPA further discloses a SAS initiator device coupled to at least one of the

plurality of expander devices (see page 3, first paragraph).

As per claim 12, AAPA further discloses a SAS expander device coupled to at least one of the

plurality of expander devices (see page 3, first paragraph).

As per claim 14, AAPA in view of Aguilar disclose a SAS network domain comprising:

means for discovering the topology of the SAS network domain by traversing port connections

between devices of the domain (see AAPA page 3, first paragraph and Aguilar column 4, lines 26-49,

*describing means that could be used to perform the discovering*);

means for automatically determining the routing attribute to be associated with each discovered

port of the discovered devices (see Aguilar column 4, lines 26-50);

means for configuring SAS routing attributes associated with ports of devices of the domain in

response to discovery of the topology of the domain (see AAPA page 3, second paragraph, and Aguilar

column 4, lines 26-49, *describing means that could be used to configure routing attributes after a topology*

*discovery*); and

means for configuring routing tables using the configured routing attributes, the routing tables

used by the devices of the domain (see Aguilar column 4, lines 26-49, *describing how the system can*

*change routing signals between ports and controllers*).

As per claim 16, Aguilar further discloses that the means are substantially integrated so as to

traverse the port connection between the device of the domain only once (see column 4, lines 30-34).

As per claim 17, AAPA further discloses means for exchanging SMP messages between the

devices of the domain to identify the devices, to identify the ports of the devices and to identify the port

connections between the ports of the devices (see page 3, first paragraph and Aguilar column 4, lines 26-49, *describing the mans that could be used to perform the exchanging*).

As per claim 18, AAPA in view of Aguilar further discloses exchanging SMP Report General request and response messages to identify ports of the devices and to identify the port connections between the ports of the devices (see page 3, first paragraph and Aguilar column 4, lines 26-49, *describing the mans that could be used to perform the exchanging*).

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

A)      Appellant contends that Aguilar is not related to the particulars of discovering ports of a SAS domain and automatic determination and configuration of routing attributes of devices in a SAS domain.

In considering A), although Aguilar might not be automatically configuring routing attributes of devices in a <u>SAS domain</u>, he does teach automatic determination and configuration of routing attributes of devices that may be applied to personal computer systems, information appliances, set-top boxes, cable modems, game consoles, smart appliances, handheld computer, palm-sized computers, embedded control systems, workstations, servers and the like (see Abstract and column 4, lines 26-49, *describing the addition of a device and querying the port router to discover the topology and changing hardware registers to configure routing attributes to accommodate the newly added device*).  Given the wide range of domains that could use the benefit of automatic determination and configuration of routing attributes, the Examiner believes that one of ordinary skill in the art at the time of the invention would have found it obvious to apply Aguilar's teaching of automatic determination and configuration of routing attributes to the Appellants Admitted Prior Art (AAPA) of an SAS domain, in order to avoid tedious manual configuration with the addition of new devices (see Aguilar column 1, lines 39-50).

In considering the automatic determination it was known at the time of the invention that merely providing an automatic means to replace a manual activity which accomplishes the same result is not sufficient to distinguish over the prior art, *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194

(CCPA 1958). For example, simply automating the step of configuring routing attributes gives just what one would expect from the manual step as shown in AAPA; In other words, there is no enhancement found in the claimed step other than the known advantage of increased speed. The end result is the same as compared to the manual method.

In considering the specific routing attributes that are supposed to be configured (i.e. subtractive, table and direct routing attributes), it is not clearly claimed that the routing attributes are limited to those particular ones and even if they were, AAPA discloses that the SAS standards define the routing attributes so it would be obvious to configure the ports in that manner. Furthermore, Aguilar teaches traversing nodes to determine and configure the routing attributes of each port encountered in the traversal (see column 4, lines 26-49, *showing how the default topology is determined by querying (i.e. traversing) the port router and routing of signals (i.e. routing attributes) between any combination of Ports and Controllers can be effected*). In considering Aguilar not teaching that the automatically configured routing tables are distributed or otherwise shared for use by other device of the SAS domain, it is not clearly claimed that the claimed invention intends on doing that. The claim merely requires determining and configuring routing attributes to be associated with each discovered ports of the discovered devices, however does not mention distributed or shared for use by other devices.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Philip J Chea/

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